

URBANIZATION AND URBAN SYSTEMS IN THE PEOPLE'S REPUBLIC OF CHINA: RESEARCH FINDINGS AND POLICY RECOMMENDATIONS

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Abstract. This paper provides a literature review on urbanization in the People's Republic of China (PRC). Research findings indicate that the PRC's urbanization is incomplete: its level of urbanization lags behind its industrialization and development status, and while there are too many small cities, the large cities are not large enough. This is mainly because of the institutional constraints exerted by the *Hukou* and land systems on labor mobility, which have led to segregation, efficiency loss, distortion in the urban system and adverse impacts on equity, as discussed in this study. Major policy recommendations are offered for removing the distortions and steering the PRC's urbanization onto an efficient and equitable path.

Keywords. *Hukou*; Inequality; People's Republic of China; Segregation; Urbanization; Urban system

1. Introduction

The People's Republic of China (PRC) had 171.3 million urbanites in 1978, accounting for 17.9% of the total population. The urbanization level increased to 52.6% in 2012,¹ implying a total of 710.5 million urban residents. The speed of urbanization in the PRC has gained momentum over time. From 1978 to 2012, the urbanization rate grew annually by 1 percentage point on average. The annual rate of urbanization was only 0.6 percentage points from 1978 to 1995 but jumped to 1.4 percentage points for 1995–2012. It seems that the pace of urbanization is picking up, rather than slowing down as some expected.

It is important to point out that the PRC's urbanization has proceeded apace despite various stringent constraints imposed by the infamous household registration or *Hukou* system. The *Hukou* system was implemented initially in Chinese cities in 1951 after the founding of the People's Republic. It was extended to rural areas in 1955. *Hukou* has been used to control or prevent free movement of the population not only between countryside and cities but also across locations since 1958 and remains in effect today. Although recent reforms have been implemented to allow migrants to change their *Hukou* status after they have been employed in a city for a certain period, this only applies to medium and small cities.²

Rapid urbanization is a result of rural-to-urban migration, but the urbanization level quoted above is based on official statistics and it includes migrants without household registration (*Hukou*) in the city

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where they live (Tao and Xu, 2005; Li, 2008). According to the Sixth Population Census, more than 220 million residents do not have local *Hukou*, most being rural-to-urban migrants.³ The real urbanization rate defined as the proportion of urban *Hukou* residents in the total is only about 35%. This means a significant proportion of the total urban population cannot enjoy the same benefits as local *Hukou* residents. It is in this context that the PRC's urbanization is said to be incomplete, with serious ramifications as discussed later in the paper.

The PRC's urbanization strategy can be characterized as pro-small or anti-big cities, although larger cities have recently been enjoying more support from central and local governments. The rigid *Hukou* system or incomplete urbanization and contradictory urbanization strategy have led to a series of abnormalities: urbanization lagging behind development and industrialization status; urban land expanding much faster than urban population growth; open discrimination against migrants; a significant proportion of urban residents being excluded from urban society; and serious distortions in the urban system with too many small cities and too few big cities (Lu, 2013).

This paper takes stock of the literature on the PRC's urbanization, focusing on the incomplete nature of urbanization and three major abnormalities: open discrimination; lagging urbanization levels; and skewed distribution of city size. The following section gathers evidence on the extent to which urbanization has been lagging behind, the segregation caused by *Hukou*, and how distorted the urban system is. This is followed by discussion in Section 3 of the impacts of these abnormalities in terms of exclusion, efficiency loss and adverse impacts on equity. In Section 4, policy recommendations are proposed. Finally, Section 5 concludes.

2. The PRC's Urbanization and Urban System: Segregation, Repression and Distortion

2.1 Intraurban Segregation

According to Lewis (1954), urbanization is driven by capital accumulation in urban industries. Underlying this model are two implicit assumptions: (1) rural-to-urban migration is frictionless and (2) the urban labor market is competitive, without discrimination against migrants. Thus, urbanization is simply a result of industrialization.

However, both assumptions are invalid in the case of the PRC. The infamous *Hukou* seriously impedes migration and legitimizes all kinds of discrimination against migrants. It also restricts access to most welfare entitlements and basic public services for the majority of migrants (Zhu, 2003, 2004), even for small benefits such as purchasing a city bus pass (Chan and Buckingham, 2008). As *Hukou* determines many important aspects of life, the *Hukou* book which records the location and attributes of households has been dubbed the PRC's 'No. 1 document' (Chan, 2009). Migrants are excluded from many urban jobs (Chan and Buckingham, 2008; Wang *et al.*, 2009; Friedman and Lee, 2010) and face many formal and informal obstacles to securing jobs (Li, 2003).

As urbanization proceeds apace, more migrants enter cities without local urban *Hukou*. It can be said that a new 'dual society' driven by *Hukou* has emerged in Chinese cities (Lu *et al.*, 2013) where migrants are segregated from the native urbanites. A study using survey data in Shanghai, the largest city in the PRC, shows that residential segregation between *Hukou* and non-*Hukou* people has occurred (Chen, Lu, and Chen, 2012). Another indicator of segregation is the income gap between *Hukou* and non-*Hukou* groups. According to Démurger *et al.* (2009), on average, native urban residents earned 30% more than long-term rural migrants in 2002. Furthermore, migrants often do not get paid on time. Using 2005 population census data, after controlling for origin of migration and whether migrants came from regions where a different dialect is spoken, Chen *et al.* (2013) found that those without local urban *Hukou* face difficulties in entering service sectors and gaining better paid positions. For a long period, the wages of urban *Hukou* workers kept increasing, while migrants' incomes did not grow significantly, implying

worsening income gaps (Meng and Bai, 2007; Zhang and Meng, 2007). More specifically, from 2001 to 2005, for those with comparable education, migrants' wages decreased by 4% while the average real wage of urban workers rose by 7% (Knight *et al.*, 2011). This finding is consistent with more recent data from the National Bureau of Statistics (NBS), which show that the ratio of average wages for migrants compared to native urban workers has declined from 76% to 65%. This decline was also found by The Research Group in Survey and Statistics Department of the People's Bank of China in Shanghai (2011). In another study, using four rounds of data from Shanghai, Yan (2007) estimated that from 1995 to 2003, increases in returns on education differed between migrants and local residents. This was confirmed by Zhang and Meng (2007) who showed an increasing wage gap between rural migrants and urban residents, mainly due to a relative decline in migrants' educational returns.

However, there are research findings showing a moderation of labor market discrimination or segregation. Using data from Shanghai, Yan (2011) finds that the proportion of migrants in the formal employment sector⁴ is rising and migrants' educational returns are increasing. The gap in educational returns between migrants and local residents is narrowing, implying gradual integration of the urban labor market for migrants and native workers, where the differences in incomes and jobs are mainly attributable to resident-migrant differences in human capital and institutional discrimination in job attainment and social security. Cai and Du (2011) showed that the effect of *Hukou* status on wages is shrinking gradually, but this finding should be interpreted with caution. It does not necessarily suggest improvement in segmentation. Cai and Du (2011) also reported that when dividing samples into 10 quantiles, the wage gap between migrants and residents shrinks in the low-income quantiles, while the gap widens in the high-income group. Our interpretation of their findings is: The high-income migrant group may accept low wages to obtain urban *Hukou*, but it is the low-income workers who really face labor mobility barriers. This is the fundamental cause of the recently emerged shortage of labor supply, and rising wages in coastal areas.

The *Hukou*/non-*Hukou* segmentation in cities is not only seen in the labor market, but also in social dimensions. The *Hukou* system and the accompanying discrimination against migrants impede social integration (Zhang and Lei, 2008) and social harmony (Chen and Lu, 2008). Furthermore, once a dualistic urban society is formed, it hampers urban development. The discriminations related to *Hukou* in the labor market directly lead to intraurban inequality and social conflicts (Chen and Lu, 2008). Chen, Liu, and Lu (2013) pointed out that, even if labor market discrimination is removed, *Hukou* status still leads to inequality in public services, and consequently social conflicts and unproductive waste. Using data from Shanghai, Wang, Chen, and Lu (2009) found that, compared with local residents, migrants have significantly lower trust scores in terms of within-community trust, social trust and public trust. Income and education do not change the trust difference between migrants and local residents. Furthermore, migrants with low trust scores live close to each other, so they impact each other and reduce their trust levels further. The income inequality between migrants and local residents also reduces happiness. Chen, Xu, and Liu (2012) find that migrants have lower happiness scores. Even urban residents with advantageous social status feel unhappy with the inequality related to *Hukou* (Jiang, Lu, and Sato, 2012).

2.2 Repressed Urbanization

Intraurban segregation and unequal access to social security increase labor mobility costs for rural-to-urban migration and repress urbanization, and the urban economy becomes more reliant on capital accumulation (Chen and Lu, 2008; Chen, Liu and Lu, 2013). Underurbanization can also be attributed to policies that restrict the growth of large cities but encourage the growth of small- and medium-sized cities (Wang, 2010). Furthermore, capital deepening as experienced by the PRC has contributed to slow employment growth in the urban sector. Real interest rates have been seriously repressed to boost investment and capital accumulation. Thus, more capital has been used to substitute labor, especially in the manufacturing sector.

For example, Chen and Lu (2013) find that the lower the PRC's real interest rate is, the slower urban employment growth, relative to industrial value-added growth, becomes.

Consequently, urbanization is repressed and lags behind industrialization (Chang and Brada, 2006; Sridhar and Wan, 2010; Lu *et al.*, 2013). There is no standard indicator for measuring under- or overurbanization. One possibility is to compare sector GDP shares. The PRC's secondary industry accounts for about 50% of GDP, and the sum of secondary and tertiary industries account for about 90%. In contrast, the urbanization rate in 2012 was only 52.6%, which included migrants without local urban *Hukou*. Another possibility is to take the global norm as a benchmark. Lu *et al.* (2013) used cross-country data to fit an urbanization per capita GDP model. Compared with the model's predictions, the PRC's urbanization ratio is about 10 percentage points lower than the norm.

2.3 Distorted Urban System

Urbanization is not just about the rising proportion of urban population, but also about spatial distribution of population across different cities. Natural drivers such as income growth (Deng *et al.*, 2008) and human capital externality (Glaeser and Lu, 2013) are important in affecting the spatial distribution of population. According to Glaeser and Lu (2013), a 1-year increase in city-level schooling leads to 22.7% higher individual incomes. Also, the 1982 and 2000 census data show a positive correlation between the 1982 university graduate ratio and population growth across Chinese cities over the period from 1982 to 2000 (Chen and Lu, 2012). On the other hand, a 1% rise in city size increases employment probability by 0.044–0.050 percentage points. In particular, unskilled workers benefit more than college graduates in finding jobs in large cities, if their labor is supplementary to that of skilled workers (Lu *et al.*, 2012).

The most influential theory of urban system development is the core-periphery model, which rationalizes how a monocentric urban system is formed. Under the interaction of centripetal and centrifugal forces, the relationship between a region's market potential and its distance to the core is of a '∩' shape. As the distance to the core rises, the market potential declines, then rises, and finally falls again. Whether the second peak occurs or not depends on distance and trade costs. If the distance to the core is large and trade costs are high enough, the centrifugal forces will drive population dispersion and form a secondary urban center. If the population number increases, the market potential of the secondary center also grows (Fujita and Krugman, 1995; Fujita, Krugman, and Mori, 1999; Fujita, Krugman, and Venables, 1999).

The Chinese urban system fits the core-periphery model. Ho and Li (2010) found that the coastal area and big cities were growing faster compared with other regions. Xu *et al.* (2010) provided evidence for the '∩' shape using city-level panel data. Within about 600 km from Shanghai and Hong Kong, China, city-level economic growth declines as distance increases. The growth-distance relationship becomes positive at about 600 to 1500 km from the two biggest seaports, and becomes negative again for cities more than 1500 km away from the two biggest seaports. The authors also found the growth rate falls first and then rises with the distance to the nearest large city.⁵

One may ask: Will the urban system become more dispersed when domestic demand becomes more important in the PRC? Lu and Xiang (2012) compared the effects of distance to a port on labor productivities in manufacturing and services. They found '∩'-shaped cubic curves for both. The slope of the distance-productivity curve for manufacturing is negative almost everywhere, but a secondary peak shows up for the service sector. Therefore, when services become more important, the regions closer to seaports still have geographic advantages of agglomeration. Although the secondary urban centers will play a stronger role, the trend of economic agglomeration won't change substantially.

An empirical regularity in relation to urban systems is Zipf's Law, which states that a city of rank r in the (descending) order of cities has a size S equal to $1/r$ times the size of the largest city in that country. That is, the size of the second largest city should be half the size of the largest city; the size of the third largest city should be one-third the size of the largest city and so on. Most of the empirical studies find

that city-size distributions for the PRC follow Zipf's law (Song and Zhang, 2002; Zhang and Li, 2007; Gangopadhyaya and Basu, 2009; Schaffar, 2009; Ye and Xie, 2012; Soo, 2013), or at least are not far from Zipf's law or a scale-ranking pattern (Peng, 2010).

Although the PRC's urban system largely shows both a core-periphery and a scale-ranking pattern, many find that the size distribution of Chinese urban systems is distorted. It is noteworthy that both the core-periphery theory and Zipf's Law are based on both a frictionless market and free mobility of labor, which is far from true in the case of the PRC. The central government has always emphasized the development of the inland region. In support of this, the so-called Third Front Projects (*Sanxian Jianshe*) were launched in 1964 and continued until 1980. Ever since the 1980s, the central government has adopted a strategy of encouraging the development of small- and medium-sized cities, while the population of big cities is seriously controlled, especially in mega-cities like Beijing and Shanghai. More recently, the central government has directed economic resources toward inland areas, by giving them increased land quotas⁶ to develop industries, and more fiscal transfers and subsidies. One consequence of these policies is a lack of population concentration across cities. The concentration actually declined in the postreform period (Fan, 1999; Anderson and Ge, 2005). While Xu and Zhu (2009) found that Chinese city size distribution evened out during the 1990s, with small cities expanding more rapidly than large cities, others report a parallel growth pattern of Chinese cities in the long run (Wang and Zhu, 2013). Policies restricting land supply and the development of large cities may have contributed to the flattening distribution of the manufacturing sector across regions, causing economic underagglomeration (Fan and Shao, 2011).

If labor mobility is free across regions, spatial equilibrium is reached, as people are indifferent about where to live, but policies restricting labor mobility have prevented the PRC from reaching this spatial equilibrium. Desmet and Esteban (2013) decompose the determinants of city size distribution into three main components: efficiency (productivity gain); amenities; and friction. Higher efficiency and better amenities lead to larger cities, but also to greater friction through congestion and other negative effects of agglomeration. When the economy reaches spatial equilibrium, an efficient urban system consists of several big cities and a much greater number of medium- and small-sized cities.

Therefore, the PRC's big cities are underdeveloped, and population distribution across cities is compressed. Bosker *et al.* (2012) claimed that the PRC's core-periphery urban system will be strengthened by freer mobility if the *Hukou* system is removed. Their model predicts that increased labor mobility will substantially strengthen the dominant position of the PRC's largest cities (Beijing, Shanghai, Guangzhou and Chongqing). But, it will also give rise to other large cities, either due to their central location with respect to the currently most populated provinces, or by virtue of their relatively peripheral location, which increases migration costs for workers and trade costs for firms, effectively shielding them from competition with existing main centers of production.⁷

Henderson (2007) points out that compared with other countries, Chinese cities are relatively small, and that the PRC particularly lacks cities with populations between 1 and 12 million. Wang (2010) also suggests that the PRC lacks large cities with populations of over 1 million. He predicts that the proportion of the Chinese population living in cities with over 1 million inhabitants may reach 30% by 2020 and 39% by 2030. This will require 100 or 150 additional large cities in the PRC.

Distribution of city size can be measured via Gini coefficients. With population data for each city, a Gini coefficient of city-level population can be computed. A higher Gini means more unequal spatial distribution of population. In 2000, the Gini coefficient of city-level population for the PRC was 0.43, much lower than other large countries, including Brazil (0.65), Japan (0.65), Indonesia (0.61), UK (0.60), Mexico (0.60), Nigeria (0.60), France (0.59), India (0.58), Germany (0.56), USA (0.54) and Spain (0.52). Only countries of the former USSR have similar Gini coefficients: Russian Federation (0.45) and Ukraine (0.40) (Fujita *et al.*, 2004). In the PRC, the Gini coefficient of city-level population is smaller than its counterparts in terms of built-up areas, and much smaller than that measured using city-level GDP. Between 1990 and 2006, inequality in GDP, as measured by Gini coefficients, kept rising, while that of

built-up areas and population grew at a slower pace. In fact, the latter inequalities even narrowed in some years. Therefore, economic activities are agglomerating, while population agglomeration is hindered (Lu, 2011).

3. Impacts of Repressed and Distorted Urbanization

The consequences of *Hukou*, lagging urbanization and distorted urban systems are serious. For example, large numbers of rural surplus laborers remain in the countryside with no work available, industrial restructuring has slowed down, and cities' roles in economic agglomeration are being limited. The PRC has suffered a great loss in efficiency due to the control of migration, the distortion of urbanization and the underdevelopment of large cities (Au and Henderson, 2006a, 2006b). This section briefly summarizes the impacts on efficiency and then discusses the distributional impacts in more detail.

3.1 Efficiency Loss

Au and Henderson (2006a) obtained an inverted U-shape linking city scale and productivity. They found that when a city grows, its real output per worker increases rapidly, indicating a great productivity gain from urbanization. Thus, distortions in urban systems result in substantial efficiency and growth loss. It is estimated that 51–62% of Chinese cities are too small. In a typical city, this amounts to about a 17% loss in worker productivity. For a quarter of the cities included in the estimations, the loss is as high as 25–70%. Jiang, Okui, and Xie (2008) found that deviations in the provincial-level Zipf's coefficient from its standard equilibrium value of 1 have negative impacts on economic growth. Wang (2010) also argues that the policy of restricting city size has harmed economic growth. Wang and Xia (1999) estimated how city population size contributes to productivity and how much population size affects government expenditure in infrastructure, management and individual living costs. Correspondingly, they assessed the difference between the benefits and costs of urbanization, and found that large cities with populations between 1 and 4 million have the highest economies of scale in the PRC, equivalent to 17–19% of the cities' GDP. Above this size, the net benefits declined gradually, while for cities with less than 100,000 residents, there were no net benefits.

Not only is labor productivity lost, but macroeconomic structure is also distorted. The Chinese economy is known to be driven by a very high investment to GDP ratio, while the consumption to GDP ratio is less than 50%, which is very low from an international perspective (Chen, Lu, and Zhong, 2010, 2013). The repressed consumption can partly be explained by the *Hukou* system. Without urban *Hukou*, urban life is very expensive for migrants, since they do not get equal access to social security and public services. According to Chen, Jiang, Lu, and Sato (2013), the probability of rural-to-urban migration rises then falls with age. The turning point of the inverted U-shape is 33 years of age. So, for a representative migrant, he/she does not have the expectation that he/she will live in a city for a lifetime, thus his/her future income will decline after returning home. Migrants receive much less social security cover, so they need to save more to cover aging and health care. Furthermore, migrants won't spend much on durable goods, if they expect that they won't stay permanently in the city where they work. Consequently, compared with an urban *Hukou* resident, rural-to-urban migrants would have significantly lower consumption due to higher expectations of returning home with lower future incomes, higher precautionary savings motivation, and lower demand for durable goods (Chen, Lu, and Zhong, 2010, 2013).

3.2 Urban-Rural Gaps and Interregional Inequality

In the PRC, since most transprovince migration largely involves rural-to-urban population flow, lagging urbanization is expected to contribute to the worsening of both rural-urban income gaps and interregional

income inequality. Urban-rural gaps account for 70–80% of interregional inequality, because usually a poor region has a higher proportion of rural population (Wan, 2006). In a normal market economy, full mobility of labor will help narrow urban-rural income gaps and interregional inequality. Thus, urban-rural inequality usually narrows during urbanization (Henderson, 2007). For example, the Republic of Korea eliminated urban-rural inequality in 1994, and Sri Lanka and Taipei, China brought down their urban-rural income ratio to under 1.4 by 1995 (Henderson, 2007).

There are two channels by which urbanization reduces urban-rural inequality. First, rural surplus laborers who are underemployed or unemployed can achieve higher productivity when they migrate to cities. Second, when more rural laborers move into cities, those staying behind have more land and other resources and can expand their scale of production. In the PRC, urbanization reduces the urban-rural income gap (Lu and Chen, 2006; Wan *et al.*, 2006), and if the PRC can remove its labor mobility barriers, the two mechanisms for narrowing urban-rural inequality will function better. Whalley and Zhang (2007) modeled the relationship between labor mobility and income inequality. They concluded that removal of the *Hukou* system would reduce inequality. Liu (2005) found that people who obtained urban *Hukou* later in their lives fared significantly less well than other urban residents. They had fewer years of education, were less likely to hold state sector jobs or to have employer-provided health care benefits, and were more likely to be self-employed or unemployed. In addition, because many migrants don't stay in the cities permanently and return home when they grow older, their agricultural land cannot be reallocated efficiently due to this incomplete migration, thus limiting the scale of agricultural production.

3.3 Interhousehold Inequality

Urbanization means a reduction in the rural population, whose members are usually poorer than urbanites. Thus, urbanization is considered inequality-reducing. Zhou (2009) provided both theoretical and empirical analyses of the relationship between urbanization, the urban-rural income gap and overall income inequality in the PRC. He showed that the PRC's overall income inequality exhibits an inverted-U pattern and noted that the PRC was expected to pass the peak point between 2006 and 2009. He also found that urbanization helps to contain rises in rural inequality. Tang and Zhang (2011) also discovered an inverted-U pattern between inequality and urban employment. A policy implication of this study is that to reduce inequality, it is vital to generate jobs in urban areas, which means promotion of urbanization.

More recently, Wan (2013) derived a relationship between urbanization and inequality using the Theil index and obtained $\partial T/\partial W_u = (T_u - T_r) + [(Y_u - Y_r)/Y - \ln(Y_u/Y_r)]$, where T = Theil index, W = population share, u and r represent urban and rural values, and Y = per capita income. Clearly, considering the urban-rural gap (the second term on the right-hand side of the equation), urbanization helps reduce inequality if and only if urban inequality T_u is lower than rural inequality T_r . But for given urban and rural inequalities (the first term), the relationship between inequality and urbanization is nonlinear. It can be demonstrated that urbanization leads to worsening income distribution initially and after passing through a threshold point, it helps reduce inequality. The peak point is determined by four variables: urban/rural average income and urban/rural inequalities.

When applied to the PRC, Wan (2013) found that: (1) urbanization led to higher inequality from 1988 to 1994 but inequality has been reducing since 1995, and in particular, after 2003, urbanization has helped to narrow urban-rural gaps; (2) the peak points vary over time but correspond to 24–39% urbanization rates. As the PRC is approaching a 55% urbanization rate, urbanization is expected to drive down inequality in the future; and (3) inequality-reducing effects were conditional on urban inequality being lower than rural inequality, a legacy of the planning era. However, urban inequality has been rising faster than rural inequality and they became almost identical in 2010. Thus, the PRC must strive to contain rising urban inequality in order to maximize the benign effect of urbanization on income distribution.

4. Policy Suggestions

The *Hukou* or household registration system and the land system are the main barriers to urbanization and interregional mobility of production factors. Because public services provided by local governments are usually linked with *Hukou* status, the public services system also becomes a barrier to migration. The deeper institutional roots of this issue are: (1) the fiscal arrangements between central government and local government, under which local governments shoulder a heavy burden of local expenditure, but local tax revenue is much less than their expenditure responsibilities; and (2) evaluation of the performance of local government officials is biased toward local economic growth. Therefore, local officials are motivated to increase local investments and cut social expenditure. Though migrants can find jobs in rich areas, local governments do not have incentives to provide public services to them. Therefore, to facilitate migration, a series of parallel reforms must be enacted; and the starting point is the reform of the *Hukou* system.

4.1 Four Principles to Guide Reform of the *Hukou* System

The first principle is to phase out the disparities in public services created by *Hukou*, including education, health care, public housing, and social security. These disparities between regions and between the rural and urban PRC have historical origins and also stem from different levels of regional economic development. From a longer-term perspective, the right to obtain local public services should be based on local residence and taxation, with *Hukou* gradually evolving into an identity verification and permanent residence registration system.

In order to prevent labor migration solely for gaining access to better public services, *Hukou* reforms should be simultaneously advanced on two fronts. First, the thresholds for nonlocal residents to obtain local urban *Hukou* should be gradually lowered. Second, steady, moderate equalization in urban-rural and interregional basic public services should be promoted through central fiscal transfers.

The second principle is to emphasize *Hukou* reform in the big cities. Getting urban *Hukou* in small and midsized cities has become relatively easier but most migrants move to big cities. Permanent nonlocal labor without local *Hukou* has already exceeded a third of the total urban population in the big cities of the eastern region, and is over 50% in Guangdong (Canton). Ongoing expansion of city size is inevitable, which in the absence of accelerated *Hukou* reforms will result in a new generation of migrant workers (i.e. second-generation migrant workers) who find it hard to settle in the city or return to the countryside. This will create progressively worse social conflicts. Future *Hukou* reform must therefore be directed toward facilitating *Hukou* settlement of labor at the location of employment, especially in the big cities.

The third principle in *Hukou* reform is that the entry requirements for gaining urban *Hukou* in big cities should be gradually lowered. As long as public services and *Hukou* are somewhat linked, and local *Hukou* residents in big cities benefit from greater quotas to enter local universities, future reforms cannot eliminate *Hukou* or adopt a free registration system immediately. If reforms are overly radical, the huge interregional/intercity gap in public services, especially education, will cause large numbers of migrants to flood the cities in a short period of time, putting intolerable pressure on the cities, especially the big ones. Yet, if the *Hukou* system is not abolished immediately, setting entry requirements or criteria remains a thorny issue. Who should be granted local urban *Hukou*? The key is to give priority to those pursuing employment over those pursuing public services. Therefore, the criteria should mainly be employment and social security contribution records. One could use years of work and unbroken residence in one area as conditions for conferring *Hukou*. At the same time, educational level and professional qualifications should be removed from the list of requirements. For university graduates, their actual employment status, not their educational qualifications, should be used as conditions for entry.

The fourth principle in *Hukou* reform is to undertake a series of parallel reforms in social security and public services. Portability of social security benefits is urgently needed, and the link between local *Hukou* and social security benefits needs to be weakened. The gap in social services between permanent

residents with and without local *Hukou* should be narrowed through central fiscal transfers. Because most high-quality kindergartens, primary and secondary schools are concentrated in the downtown area, there should be steady, moderate equalization of education resources among different areas within big cities. Most of the PRC's elite universities and high education resources are historically concentrated in the eastern big cities, and these cities give local students larger entrance quotas to these elite universities. The Ministry of Education has already proposed lowering the proportion of local student enrollment – a useful step in weakening the connection between *Hukou* and social services.

Of course, a better approach to reducing the gaps between supply and demand for high-quality education resources is to increase supply and not to decrease demand. For example, big cities should give incentives to attract high-quality foreign education resources (especially in vocational education), thereby increasing the quality of urban labor and providing high quality and broad choices in vocational education for the nonlocal population.

4.2 *The Linking of Land Reform and Hukou Reform Will Ensure a Win-Win Outcome*

How can public services resources in population-inflow regions be increased so that urban expansion does not elicit opposition from the original residents? How should the land system be reformed? How should land (including contracted agricultural land and residential land) owned by peasants who have moved to the city be dealt with? How should suburban land gained by urban expansion be distributed to suburban peasants? Linking land reform with *Hukou* reform offers the most effective way to solve these problems.

The core of our proposal is to enable long-term migrants to convert their rural residential land into construction-use land quotas which are then transferred to the city of their employment for urban expansion. The residential land at the origin is then restored into farmland. The migrants win as they obtain urban *Hukou* and associated benefits. The native urbanites also win because some of the gains from the appreciation of suburban land (as it becomes construction-use land) can be used to fund public services and social security for themselves as well as for new migrants. In fact, all parties involved will win: the original suburban peasants, peasants entering the city, suburban land users, the population-inflow region's government and the population-outflow region's government. The suburban peasants in the population-inflow region and the peasants who enter the city both obtain urban *Hukou* and reasonable compensation. Users of suburban land obtain new space. The population-inflow region's government represents local residents in obtaining a portion of the land appreciation gains while the population-outflow region's government also shares part of the gains as they restore abandoned residential land to farmland for productive use, which in turn provides revenues for funding local public services to be enjoyed by those staying behind. To make this win-win proposal a reality, a nation-wide construction-use land quota trading system could be established, to maximize the gains from construction-use land usage rights while preserving sufficient land for farming or food security.

The reform proposal separates land usage rights from land ownership. Under unchanged land ownership, in which land belongs to the rural collective by law, the proposal enables land usage rights owned by rural households to become interspatially reallocable. Consider the case of a peasant working in the city, whose hometown is in an inland region or in the countryside far from the city. The ownership of residential land in his hometown is worth little to him. But if the land can be converted into construction-use land quota, and be used in cities, it will be very valuable. He will be better off without making anyone else worse off. His contracted agricultural land can be transferred to the rural collective for a price, or he can continue to enjoy future agricultural profits by subcontracting or sharecropping.

The 'land-coupon' trade that is being tested in Chengdu and Chongqing is essentially a 'linked land and *Hukou* reform' but its implementation is limited to the municipal boundary. In comparison, what is proposed here goes beyond any administrative boundaries. This is consistent with the fact that most migrants are interregional and the huge disparities in land use efficiency across regions can be utilized to

maximize the value of usage rights for construction-use land quotas, achieving an efficient use of labor and land.

Opponents claim that economically developed regions have land that is more fertile than the economically underdeveloped areas in the population-outflow regions. This may undermine food security. One solution is to apply a conversion coefficient that equals the ratio of the average yield in the inflow region to the average yield in the outflow region when converting residential land into construction land quotas.

Opponents also claim that the exchange of land may lead to unemployment for peasants if they 'lose' their land but cannot find jobs. However, modern economies are dominated by secondary and tertiary industries. In the PRC, the agricultural share of total GDP has fallen to 10% and will continue to fall. The secondary and tertiary industries in the PRC are mainly located in urban areas and they are the main job creators for peasants. Big cities are more capable of creating jobs, especially for low-skilled laborers (Lu *et al.*, 2012). Also, only those who have permanent residence, stable employment and social security in the city are allowed to participate in this scheme. Thus, it does not necessarily lead to unemployment.

Some argue that rural land must be used as a safety net for the peasants. In our proposal, peasants are selling their hometown land user rights voluntarily to obtain urban *Hukou* with multiple benefits, including pension, health care, housing and unemployment benefits. In this case, land will no longer need to function as a safety net, as in the past when the country lacked a social security system.

Our proposal is essentially a mechanism to enable the trading of land usage rights. In such a process, the transaction costs of multiple entities negotiating together are too high and the government must play a role to establish the necessary institutional infrastructure and trading environment. Forced requisitions and demolition should be avoided during the conversion of urban suburban collective land into urban construction-use land. To adequately guarantee landless peasants' interests, a reasonable portion of land appreciation gains should be shared with new migrant entrants.

Our proposal is essentially only a marginal reform to the current land system. If clear rural land user rights are defined for peasants then the nature of land ownership need not be changed. When it comes to the PRC's urbanization and land system issues, many academics have placed their hope on land privatization reforms. While not denying the advantages of land privatization reform such as efficiency gains, protection of the interests of peasants, and facilitation of industrialization and urbanization, there are three potential problems with land privatization, which can be avoided in the trading of construction-use land quotas.

First, it will be hard to push forward *Hukou* reform under the land privatization reform proposal. If land system and *Hukou* system reforms are decoupled, it may lead the PRC into an awkward situation where the government of a population-inflow region purchases the land owned by local peasants and converts it to nonagricultural land. Land appreciation gains will mainly be enjoyed by local peasants and not by the numerous migrants, who will also find it hard to settle there.

Second, land privatization will expand inequality between rural residents. It must be noted that different locations have experienced different land value appreciations because location is a primary determinant of industry and services enterprises (Sridhar and Wan, 2010). Under land privatization reforms, peasants in different regions own land with different appreciation potential, and this creates de facto wealth inequality.

Third, the goals of the PRC's construction-use land quota system are consistent with farmland protection. But land privatization may create risks for future Chinese farmland protection goals.

Therefore, if the government adopts land privatization reform measures, schemes to reduce inequality and food security risks should be carefully designed.

4.3 Other Parallel (Matching) Reform Measures

For the proposed reforms to work effectively, there must be parallel reforms of the performance review system for local officials and of the fiscal system (especially funding mechanisms for local public services).

Local governments should be incentivized to pursue not only short-run local economic growth through investment, but also long-run per capita GDP growth based on human capital formation, which is crucial in allowing laggard regions to catch up.

The performance review system for local government officials should give different weights to aggregate GDP growth and to per capita GDP growth, and these two weights should be different for different regions.⁸ If interregional mobility of labor and interregional reallocation of construction-use land quotas are realized, the total GDP for population-outflow regions will inevitably grow more slowly even if GDP per capita grows faster. If the performance review for local officials is based on total GDP growth, then a unified nationwide regional development strategy will not be supported by the population-outflow regions. Furthermore, the more economically developed a region is, the higher the weight for aggregate GDP growth; and the less economically developed a region is, the higher the weight for GDP per capita growth.

Needless to say, fiscal reforms are urgently needed. First, government taxation as a share of GDP is quite high by international standards. Reducing the taxation burden will permit market forces more leeway in determining a reasonable scale and interregional layout of cities. Second, ever since 1994, when the PRC launched its tax sharing reform, central government has received an increasingly higher share of the tax revenue, while its expenditure share has not risen accordingly. Therefore, local governments' share of taxes under the tax sharing system framework should be increased to pay for local public services, and the responsibility of the central government for providing local public goods, especially those with interregional positive externality, like education and roads, should be increased. Third, more central-to-local fiscal transfer payments should be directed toward local public services and infrastructure, especially in regions which lag behind the rest, to narrow interregional disparity in quality of living. The quality and availability of public services across regions should be 'equalized' to avoid public services-induced migration.

As more and more rural people migrate to cities and become permanent urbanites, the central government should reform the current education financing system. If local governments shoulder the educational expenditure, they do not have the incentive to invest in education, which brings positive externalities to the population-receiving regions. The population-receiving regions won't invest in education and training for migrants, if the migrants cannot obtain local *Hukou* and stay permanently. Giving migrants local *Hukou* can change the expectations of the migrants and prompt governments to invest in human capital. Along with this, the central government should take more responsibility for education and training. The allocation of central-to-local transfer for education and training should be based on the number of permanent residents, including migrants without local *Hukou*. Another way to reform the system is to make the education fiscal transfer portable so that migrants can take education coupons to where they work and live.

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Notes

1. Wang and Wan (2014) dispute the official urbanization rate, arguing that recent rates have been underestimated, for example, by 3 percentage points in 2012.
2. Much literature provides an introduction to both the history and the reform of the *Hukou* system. Please refer to Liu (2005), Chan and Buckingham (2008), Chan (2009), and Lu *et al.* (2013).

3. Please refer to the report at http://www.stats.gov.cn/zgrkpc/dlc/yw/t20110428_402722384.htm
4. Formal sector employment usually refers to employment with formal contract, not including self-employment or jobs in mini businesses.
5. Since the distance to the regional core city is not far enough, a complete cubic curve for the relationship between growth and distance cannot be seen, but the first half, a U-shaped curve is shown (Xu *et al.*, 2010).
6. To preserve agricultural land for food security, a land quota system is adopted in the PRC. Each city or county should have a quota to convert agricultural land into nonagricultural use.
7. It is worth mentioning that geographers, using a geographic information database, a digital elevation model, and socioeconomic data, have identified nine existing Chinese urban clusters, whose locations are highly consistent with the prediction by Bosker *et al.* (2012) for the emergence of other large cities.
8. The 'National Major Function-Oriented Zone Plan' also proposes implementing different performance review mechanisms for government officials in different regions, but this is mainly directed at the balancing of economic development and other objectives.
9. The Asian Development Bank recognizes China as the People's Republic of China. See <http://www.adb.org/sites/default/files/hsu.pdf>

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